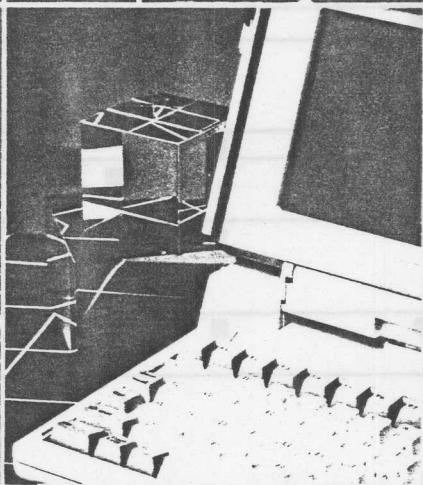
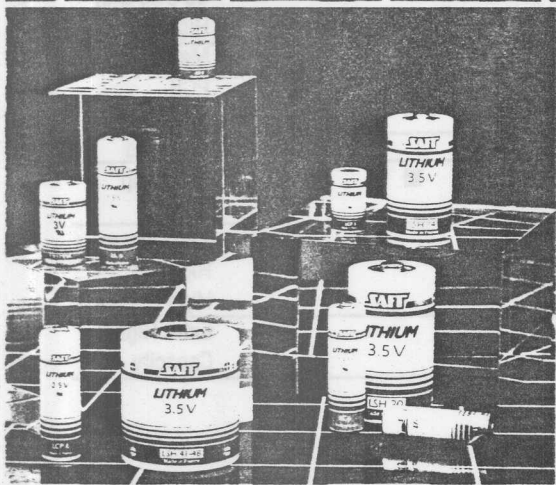
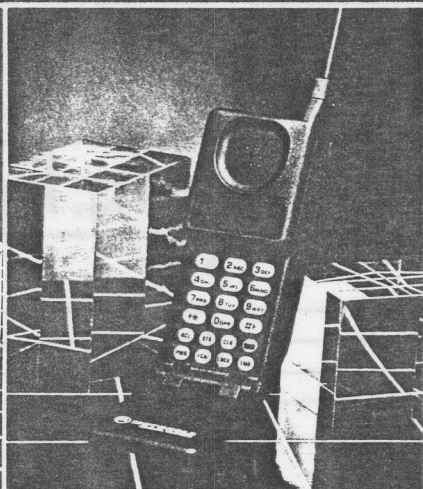
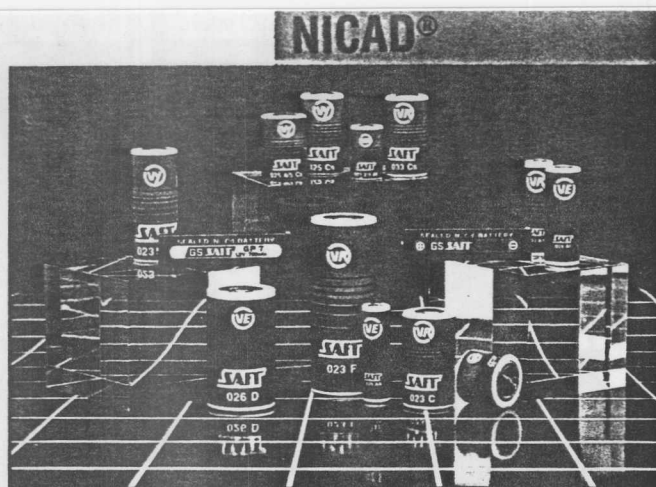


# SAFT



## BATTERY SELECTOR GUIDE





**S**AFT manufactures a full line of NICAD® batteries, from a 1/3 AA cell rated at .110 ampere hours to a super F cell rated at 10.0 ampere hours. Our complete range of batteries includes standard cells, high-temperature Polytemp® cells and fast-charge, low-resistance VR cells. Our VE series, available in AA, C, and D sizes, is designed for rapid charge, high energy applications such as cordless appliances. SAFT button cells are reliable, high-quality units offering unmatched performance and extremely long life. Our new GP series batteries are ultra-thin to provide up to 70% more volumetric energy for use in today's small personal appliances.

SAFT has a cell available to solve even the most difficult battery requirements. Additional information on any of these products is available through the offices listed on the back cover.

## GENERAL CHARACTERISTICS

Designation Series Type	SAFT Model	Type Neg.	Features Stand. Cell	High Energy	Standby Life	Cyclic Life	High Temp	High Rate	Charge Ret.	Max. Charge Rate Std. Quick Rapid*	Comments
019	GB	Mass Plate	■			■			■	■	Button
021	GP	Sinter		■		■				■	Flat Pack
022	VB	Sinter	■			■			■	■	Button
023	VR, SR	Sinter	■			■				■	Standard
025	VY	Sinter				■		■		■	Rapid Chg., High Rate Dis. Cs Size Only
026	VE, SE	Sinter		■		■		■		■	High Capacity
029	VBM	Sinter			■		■		■		Memogard PCB Mounting
033	VR, SR	PBE	■			■			■	■	Standard
037	VT, ST	PBE			■		■		■	■	Polytemp Plus
125	VY	Sinter		■		■		■		■	Fast Charge HighCap, High Dis. Rate
126	VE	Sinter		■		■		■		■	Extra High Capacity

\*Assumes Controlled Rapid Charge

## STANDARD CELLS

Cell Size	Type	Model Series No.	.2C Rated Capacity MAH	Charge* Rate Range	Temp** Range	Discharge*** Rate Range	Height inch	Dimensions mm	Diameter inch	mm	Weight grams
1/3 AA	SR	023	110	S, Q, R	S	Medium	0.660	16.76	0.535	13.57	4.0
	ST	027	110	S	H	Medium	0.660	16.76	0.535	13.57	4.0
1/3 Af	SR	023	225	S, Q, R	S	Medium	0.665	16.89	0.652	16.56	10.8
AAA	SR	023	180	S, Q, R	S	Medium	1.750	44.45	0.380	9.65	9.0
1/2 AA	SR	023	250	S, Q, R	S	Medium	1.198	30.43	0.535	13.59	10.8
2/3 Af	SR	023	450	S, Q, R	S	Medium	1.100	27.94	0.652	16.56	21.0
	SR	026	500	S, Q, R	S	Medium	1.100	27.94	0.652	16.56	21.0
	VR	023	500	S, Q, R	S	Medium	1.098	27.89	0.657	16.70	21.0



Cell Size	Type	Model Series No.	.2C Rated Capacity MAH	Charge* Rate Range	Temp** Range	Discharge*** Rate Range	Dimensions				Weight grams
							Height		Diameter		
							inch	mm	inch	mm	
AA	SR	033	500	S, Q	S	Medium	1.967	49.96	0.535	13.59	26.0
	SE	026	600	S, Q, R	S	Medium	1.967	49.96	0.535	13.59	26.0
	ST	037	500	S	H	Low	1.967	49.96	0.535	13.59	26.0
	VR	023	500	S, Q, R	S	Medium	1.969	50.00	0.555	14.10	26.0
	VE	026	600	S, Q, R	S	Medium	1.929	49.00	0.555	14.10	26.0
	VE	126	700	S, Q, R	S	Medium	1.929	49.00	0.555	14.10	26.0
	VT	027	500	S, Q	H	Medium	1.929	49.00	0.555	14.10	26.0
1/2 C	VR	033	750	S, Q	S	Medium	0.945	24.00	1.008	25.60	31.0
Af	SR	023	850	S, Q, R	S	Medium	1.940	49.28	0.652	16.56	33.0
	VE	026	1000	S, Q, R	S	Medium	1.929	49.00	0.657	16.69	33.0
4/5 Cs	SR	023	900	S, Q, R	S	High	1.300	33.02	0.875	22.23	40
3/5 C	SR	033	1000	S, Q	S	Medium	1.160	29.46	1.008	25.60	40
Cs	VR	023	1300	S, Q, R	S	High	1.662	42.21	0.875	22.23	52
	VE	026	1400	S, Q, R	S	High	1.662	42.21	0.875	22.23	52
	VT	037	1200	S, Q	S, H	High	1.662	42.21	0.875	22.23	52
	VR	033	1300	S, Q	S	High	1.662	42.21	0.875	22.23	52
	VE	126	1700	S, Q, R	S	High	1.662	42.21	0.875	22.23	52
	VY	125	1400	S, Q, R	S	High	1.662	42.21	0.875	22.23	52
	VY	025	1800	S, Q, R	S	High	2.225	56.52	0.875	22.23	68
CsD	SR	033	2000	S, Q	S	Medium	1.880	47.75	1.008	25.60	68
	SR	023	2000	S, Q, R	S	High	1.880	47.75	1.008	25.60	68
	ST	037	2000	S	H	Medium	1.880	47.75	1.008	25.60	68
	VR	023	2000	S, Q, R	S	High	1.949	49.50	0.998	25.35	75
1/2 D	SR	033	2200	S, Q	S	Medium	1.448	36.78	1.271	32.28	80
	SR	023	2200	S, Q, R	S	High	1.448	36.78	1.271	32.28	80
	ST	037	2200	S	H	Medium	1.448	36.78	1.271	32.28	80
D	SR	033	4000	S, Q	S	Medium	2.318	58.88	1.271	32.28	130
	SE	036	4500	S, Q	S	Medium	2.318	58.88	1.271	32.28	130
	ST	037	4000	S	H	Medium	2.318	58.88	1.271	32.28	130
	VR	023	4000	S, Q, R	S	High	2.374	60.30	1.274	32.35	150
	VE	026	4500	S, Q, R	S	High	2.295	58.29	1.274	32.35	150
F	SR	033	7000	S, Q	S	Medium	3.508	89.10	1.271	32.28	210
	ST	037	7000	S	H	Medium	3.508	89.10	1.271	32.28	210
	VR	023	7000	S, Q, R	S	High	3.587	91.10	1.274	32.35	235
SF	VR	023	10000	S, Q	S	High	3.504	89.00	1.620	41.15	390



Charge* Rate	Charging Temperature** Range	Discharge*** Rate
Standard - S	Standard (+5°C to +50°C) - S	Low (1C) - L
Quick - Q	High (+10°C to +65°C) - H	Medium (5C) - M
Rapid - R		High (10C) - H

## SPECIAL PRODUCTS

Cell Size	Type	Model Series No.	.2C Rated Capacity MAH	Charge* Rate Range	Temp** Range	Discharge*** Rate Range	Height inch	Dimensions mm	Diameter inch	mm	Weight grams
GB 50H	Button	019	50	S	S-H	Low	0.232	5.9	0.614	15.6	3.3
GB 150H	Button	019	150	S	S-H	Low	0.256	6.5	0.913	23.2	9.0
GB 250H	Button	019	250	S	S-H	Low	0.366	9.3	0.913	23.2	12.5
GF 20	Button	022	20	S	S-H	Low	0.118	3.0	0.614	15.6	2.0
GF 30	Button	022	30	S	S-H	Low	0.079	2.0	0.913	23.2	3.5
GF 40	Button	022	40	S	S-H	Low	0.087	2.2	0.913	23.2	4.0
GF 50	Button	022	50	S	S-H	Low	0.110	2.8	0.913	23.2	4.5
GF 90	Button	022	90	S	S-H	Low	0.181	4.6	0.913	23.2	6.5
GF 100	Button	022	100	S	S-H	Low	0.213	5.4	0.913	23.2	7.0
VB 4 E	Button	022	40	S, Q	S	Medium	0.236	6.0	0.618	15.7	3.5
VB 10 E	Button	022	100	S, Q	S	Medium	0.209	5.3	0.906	23.0	7.0
VB 22 E	Button	022	220	S, Q	S	Medium	0.307	7.8	0.988	25.1	12.0
VB 30 E	Button	022	300	S, Q	S	Medium	0.217	5.5	1.366	34.7	18.0
VB 60 E	Button	022	600	S, Q	S	Medium	0.386	9.8	1.366	34.7	31.0

## PRISMATIC CELLS

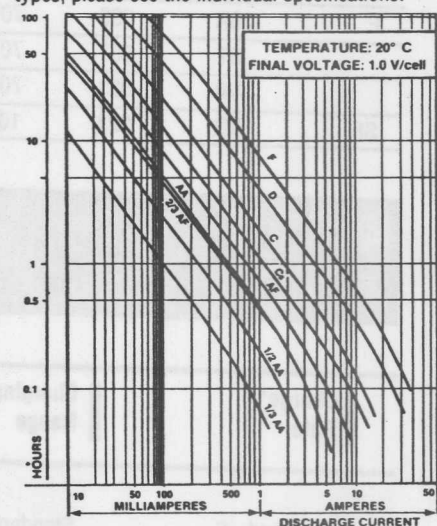
Cell Size	Type	Model Series No.	.2C Rated Capacity MAH	Charge* Rate Range	Temp** Range	Discharge*** Rate Range	Length inch	mm	Dimensions Width inch	mm	Thickness inch	mm	Weight grams
GP 3	Prismatic	021	270	S	S	M	1.890	48.0	0.646	16.4	0.220	5.6	16
GP 5	Prismatic	021	405	S	S	M	2.638	67.0	0.646	16.4	0.220	5.6	23
GP 7	Prismatic	021	630	S	S	M	2.638	67.0	0.646	16.4	0.307	7.8	30
GP 4E	Prismatic	021	360	S	S	M	1.890	48.0	0.646	16.4	0.220	5.6	16
GP 6E	Prismatic	021	540	S	S	M	2.638	67.0	0.646	16.4	0.220	5.6	23
GP 9E	Prismatic	021	765	S	S	M	2.638	67.0	0.646	16.4	0.307	7.8	30
GP 20E	Prismatic	021	1800	S	S	M	2.638	67.0	0.646	16.4	0.646	16.4	58

## GENERAL RECOMMENDATIONS

	Standard	Rapid Charging	High Temperature	High Capacity	Specialty (Extended Performance)
Security	023 033	-	027 037	-	137
Home Appliances	023 033	023 025	027	026	125 126
Office & Electronics	019 023 033	023 025	027 029 037	026	126
Communications	019 023	023		026	021 126
Military	023 033	023	-	026	-
Consumer Products	023 033	023 026	-	026	021 126
Toys & Hobby Products	023	023 025	-	026	125 126
Tools	024	023 025	-	026	125

## DISCHARGE DURATION

This diagram facilitates the choice of the capacity of the required batteries. It is presented for type VR 023. For other types, please see the individual specifications.



### USING THE DIAGRAM

-Define the required time and discharge current (final voltage 1 V/cell).  
-Read the battery type to be used, above the intersection of Hours and Discharge Current.

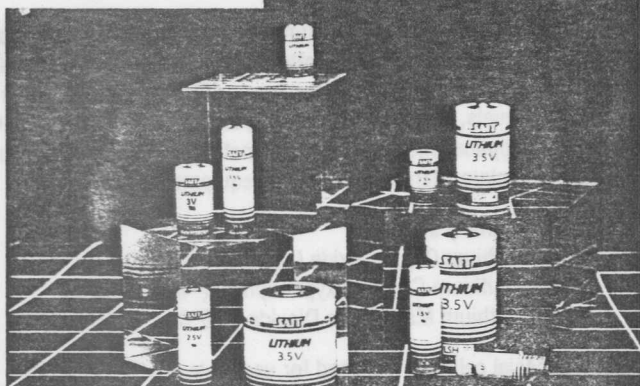
### EXAMPLE:

Discharge duration: 1 hour  
Discharge current: 1A

choice: VR1.3 Cs



# LITHIUM



**S**AFT liquid cathode lithium cells offer excellent high rate discharge performance over a wide temperature range, and ten or more years of shelf life. SAFT LX series—Lithium Sulfur Dioxide cells (-55°C to +55°C) offer a specially developed glass to metal seal, and superior low temperature performance. SAFT LS series—Lithium Thionyl Chloride cells (-40°C to +75°C) feature a patented electrolyte that eliminates voltage delay; high rate LSH cells incorporate an integral fuse for safety.

These features and more make SAFT liquid cathode cells the designer's choice for demanding applications such as military communications, sonobouys, mines, and ELT's.

	Model	Standard Size	Nominal Voltage	Rated Capacity (Ah)	Maximum Dimensions		Length		Weight		*Features
					Diameter		inch	mm	oz..	gr.	
<b>LX SERIES</b>	LX1622	1/2A	3.0	0.50	0.660	16.8	1.050	26.7	0.35	10.0	S,GTM
	LX1634	2/3A	3.0	0.85	0.660	16.8	1.380	35.1	0.49	14.0	S,GTM,RL
	LX2618	2/5C	3.0	0.90	1.032	26.2	0.709	18.0	0.46	13.0	S,GTM
	LX2649	C	3.0	3.50	1.032	26.2	1.969	50.0	1.52	43.0	S,GTM,RL
	LXH2649	C	3.0	3.00	1.032	26.2	1.969	50.0	1.52	43.0	S,GTM,HR
	LXH2958	--	3.0	4.40	1.142	29.0	2.288	58.0	2.11	60.0	S,GTM,HR
	LX3457	D	3.0	7.50	1.346	34.2	2.420	61.5	3.00	85.0	S,GTM
	LXH3457	D	3.0	7.00	1.346	24.2	2.420	61.5	3.00	85.0	S,GTM,HR
	LX3851	--	3.0	8.00	1.496	38.0	1.890	48.0	3.06	87.0	S,GTM

<b>LS SERIES</b>	LS3	1/2AA	3.5	0.85	0.571	14.5	1.020	26.0	0.30	8.5	B,GTM,RL
	LSH26190	2/5C	3.5	1.10	1.032	26.2	0.740	18.7	0.88	25.0	S,GTM
	LS6	AA	3.5	1.80	0.571	14.5	1.990	50.5	0.54	15.4	B,GTM,RL
	LSH14	C	3.5	5.00	1.032	26.2	1.970	50.0	1.97	56.0	S,GTM,F
	LSH20	D	3.5	10.00	1.350	34.2	2.420	61.5	4.22	120.0	S,GTM,F
	LSH4148	SD	3.5	13.00	1.654	42.0	1.949	49.5	5.63	160.0	S,GTM,F
	LS622	Transistor	7.0	1.10	In (L) 1.03 x (W) 0.67 x (H) .193 mm (L) 26.0 x (W) 17.0 x (H) 49.0				1.06	30.0	B,GTM

<b>BA 5000 SERIES</b>	Model	Nominal Voltage	Rated Capacity (Ah)	Length		Dimension Width		Height		Weight	
				inch	mm	inch	mm	inch	mm	oz..	gr.
	BA5567/U	2.8	800	1.00	25.4	1.00	25.4	0.718	18.2	0.70	20.0
	BA5847/U	5.6	6500	2.55	65.0	1.50	38.0	3.750	95.3	0.53	240.0
	BA5588/U	14.0	3000	3.55	19.0	1.22	31.0	3.480	88.4	0.65	295.0
	BA5590/U	28.0	6500	4.40	112.0	2.45	62.0	5.000	127.0	2.25	1021.0
	BA5598/U	14.0	8000	3.57	52.4	4.69	119.1	2.06	52.4	1.50	681.0

## LITHIUM METER BATTERIES

Model	Standard Appl.	Nominal Voltage	Rated Capacity (Ah)	Maximum Dimensions		Length		Weight		*Features
				Diameter		inch	mm	oz..	gr.	
2LX2317	GE TM80	5.6	.675	1.0	25.4	1.65	41.9	1.1	32	GTM,GC
LS3	GE TM90	3.5	.850	.675	17.2	1.125	12.0	.42	12	GTM,GC
LX2649	SW EMT	2.8	3.500	1.03	26.2	1.97	50.0	1.52	43	GTM
2LX1622	SW MTM	5.6	.600	.645	16.4	2.20	55.9	.70	20	GTM,GC

**S**AFT solid cathode lithium cells offer performance characteristics unequaled by other battery systems—over ten years shelf life, operating temperatures from -40°C to +175°C, three voltage levels, high energy densities, and low self discharge rates. Ideal for many applications such as utility meters, oil well logging equipment, memory backup, alarms, and military equipment.

SAFT offers many systems:

LC = Lithium Copper Oxide (-40°C to +85°C);

LCP = Lithium Copper Oxyphosphate (-40°C to 85°C);

LM = Lithium Manganese Dioxide (-20°C to +50°C);

Note: Special cells are designed for use up to 135°C and 175°C.

	Model	Standard Size	Nominal Voltage	Rated Capacity (Ah)	Maximum Dimensions				Weight		*Features
					Diameter	Length			oz.	gr.	
LC SERIES	LC3	1/2AA	1.5	1.40	0.571	14.5	1.020	26.0	0.26	7.3	B
	LC6	AA	1.5	3.30	0.571	14.5	1.990	50.5	0.61	17.4	B, RJ
LCP SERIES	LCP3	1/2AA	2.5	0.95	0.571	14.5	1.020	26.0	0.25	7.0	B, RJ
	LCP6	AA	2.5	2.30	0.571	14.5	1.990	50.5	0.60	17.0	B, RJ
	LCP6 HT	AA	2.5	1.90	0.571	14.5	1.990	50.5	0.63	18.0	B, GTM, HT
	LCPH14 HT	C	2.5	4.50	1.032	26.2	1.969	50.0	1.94	55.0	S, GTM, HT
LM SERIES	LM2016	Coin	3.0	0.07	0.787	20.0	0.063	1.6	0.06	1.7	RJ
	LM2025	Coin	3.0	0.14	0.787	20.0	0.098	2.5	0.09	2.5	RJ
	LM2032	Coin	3.0	0.18	0.787	20.0	0.126	3.2	0.11	3.0	RJ
	LM2430	Coin	3.0	0.27	0.965	24.5	0.118	3.0	0.14	4.0	RJ
	LM2450	Coin	3.0	0.50	0.965	24.5	0.201	5.1	0.19	5.9	RJ
	LM17250	1/2AA	3.0	0.65	0.571	14.5	0.906	23.0	.24	7.0	B, RJ
	LM17500	AA	3.0	1.90	0.571	14.5	1.988	50.5	.60	17.0	B, RJ
	LM17335	2/3A	3.0	1.50	0.670	17.0	1.319	33.5	.53	15.0	B, RJ
	HLD2430	Special holder for use with LM2430 to provide user replaceability.									
	HLD2450	Special holder for use with LM2450 to provide user replaceability.									
	HLD1/2AA	Special holder for use with 1/2AA to provide user replaceability.									

#### \*FEATURES

F = Integral Fuse  
S = Spiral Construction  
HT = High Temperature (175°C)

HR = High Rate  
GTM = Glass to Metal Seal  
B = Bobbin Construction  
E = Epoxy Encapsulated

GC = Gold Plated Contacts  
MT = Medium Temperature (135°C)  
RJ = UL Recognized Component  
(File #MH12609)

# SAFT

Data in this document are subject to change without notice and become contractual only after written confirmation by SAFT.

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